REMARKS

<u>Rejection of claims 1-2 and 9-13 under 35 U.S.C. §102(b)</u>

The Examiner rejected claims 1-2 and 9-13 under 35 U.S.C. §102(b) as being anticipated by Doing. Applicant asserts the cited art does not teach or suggest the invention as claimed and the Examiner has mischaracterized the teachings of the cited art.

In the rejection of claim 1, the Examiner states that Doing discloses the thread switching mechanism as recited in claim 1, citing Doing at col. 14 lines 21-27. The Examiner makes the following statement:

> "Note that the sequential buffer holds instructions ment [sic] for the current thread and the thread switch buffer holds instructions in case of a thread switch. Clearly, this would indicate that after a context switch, the instruction contents of these registers would be swapped ...".

This statement by the Examiner shows a misunderstanding of Doing. The express teachings of Doing indicate the contents of the sequential hold buffer and the thread switch buffer are not swapped. In Doing, when there is a thread switch, the inactive thread becomes the active thread, and the active thread becomes the inactive thread as taught on column 14, lines 22 through 24. When a thread is switched from inactive to active, there is no swapping or moving of instructions between the sequential hold buffer and the thread switch buffer. To the contrary, the decode/dispatch logic 206 simply chooses a different buffer as the source of the next instruction. It is significant to note that the sequential hold buffer 203 and the thread switch buffer 204 in FIG. 2 of Doing do not have a path that connects them. This means that swapping the contents of the sequential hold buffer 203 and the thread switch buffer 204 as suggested by the examiner is physically impossible in Doing. When a thread switch occurs, the instructions in the thread switch buffer 204 are immediately available to the decode/dispatch logic 206 via the branch buffer 205. The decode/dispatch logic 206 knows immediately after a thread

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switch to retrieve instructions from the branch buffer, which is apparently overwritten by the instructions in the thread switch buffer 204 when a thread switch occurs. Note that overwriting the branch buffer 205 with the instructions in the thread switch buffer 204 does not read on the thread switch mechanism in claim 1 because the overwriting of the branch buffer 205 with the data in the thread buffer 204 does not read on swapping information stored in the thread buffer with information stored in the branch buffer. In particular, there is no path in FIG. 2 of Doing where the data from the branch buffer 205 could be written to the thread switch buffer 204. As a result, Doing does not teach or suggest the thread switch mechanism recited in claim 1. Reconsideration of the Examiner's rejection is respectfully requested.

Claim 2

Claim 2 depends on claim 1, which is allowable for the reasons given above. Claim 2 is therefore allowable as depending on an allowable independent claim.

Claim 9

In the rejection of claim 9, the Examiner cites column 7, line 52 to column 8 line 3. This section of Doing describes changing the active thread as described above with reference to claim 1. There is nothing in this section to support the Examiners interpretation of Doing. The arguments with respect to claim 1 are included here by reference. Doing does not teach or suggest the invention as claimed and the Examiner is respectfully requested to withdraw the rejection of claim 9.

Claims 10-13

Claims 10-13 depend on claim 9, which is allowable for the reasons given above. Claims 10-13 are therefore allowable as depending on an allowable independent claim.

Rejection of claims 3-6, 8 and 14-19 under 35 U.S.C. §103(a)

The Examiner rejected claims 3-6, 8 and 14-19 under 35 U.S.C. §103 as being unpatentable over Doing in view of Shoemaker. Applicants assert the cited art does not teach or suggest the invention as claimed and the Examiner has mischaracterized the teachings of the cited art.

Claims 3-6, 8

Claims 3-6, and 8 depend on claim 1, which is allowable for the reasons given above. Claim 3-6 and 8 are therefore allowable as depending on an allowable independent claim. The Examiner adds the Shoemaker reference for the concept of multiple threads (more than 2). However, the Examiner makes the same mischaracterization and misunderstanding of the cited art as described above with reference to claim 1 and those arguments for claim 1 are included here by reference. In Shoemaker, the multiple threads are threads that are all available to be selected (paragraph 6). These multiple thread could be considered as stated by the Examiner, simply replicated portions of Doing. However, the claimed invention is not simply replicated portions of Doing. In the invention of claim 3, the primary threads swap information with secondary threads when there is a stall. The cited art does not teach or suggest swapping data for threads from a secondary thread to a primary thread. As in the previous case, the Examiner has erroneously equated selection of an instruction source with swapping of data. Applicant asserts this is not a proper interpretation of the claim

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language or the cited art. The ordinary meaning of these terms is not the same and when interpreted in light of the specification it is clear that swapping data between the primary and backup threads is different than selecting from different instruction sources. In particular it allows a simpler architecture as described beginning on page 5 lines 15. Reconsideration is respectfully requested.

Claims 14-17

Claims 14-17 depend on claim 9, which is allowable for the reasons given above. Further, claims 14-17 include the limitations discussed with reference to claims 3-6 and 8 discussed above and those arguments are included here. Claims 14-17 are therefore allowable as depending on an allowable independent claim and for the reasons stated above. Reconsideration is respectfully requested.

Claim 18

Claim 18 includes the limitations discussed with reference to claims 3-6 and 8 and those arguments are included here. Claim 18 is therefore allowable for the reasons stated above. Reconsideration is respectfully requested.

Claim 19

Claim 19 depends on claim 18, which is allowable for the reasons given above. Claim 19 is therefore allowable as depending on an allowable independent claim.

Rejection of claims 7 and 20 under 35 U.S.C. §103(a)

The Examiner rejected claims 7 and 20 under 35 U.S.C. §103 as being unpatentable over Doing in view of Shoemaker and in view of Levy. Applicants assert the cited art does not teach or suggest the invention as claimed and the Examiner has mischaracterized the teachings of the cited art. The Examiner has included the Levy reference for the concept of a pool of registers to backup the primary threads rather than just a single backup. However, the Examiner's characterization of Doing and Shoemaker is flawed as discussed above with reference to claim 1 and claims 3-6, and 8; and the arguments above for these claims are included here by reference. Reconsideration is respectfully requested.

Rejection of claims 21 and 22 under 35 U.S.C. §103(a)

The examiner rejected claims 21 and 22 under 35 U.S.C. §103(a) as being unpatentable over the combination of Doing, Shoemaker and Redington. Claim 21 includes many limitations that were addressed above with respect to claims 1 and 3, and is therefore allowable for the reasons given above. Claim 22 depends on claim 21, which is allowable, and is therefore allowable as depending on an allowable independent claim. Applicant respectfully requests reconsideration of the examiner's rejection of claims 21 and 22 under 35 U.S.C. §103(a).

Rejection of claims 1-20 under 35 U.S.C. §102(e)

The Examiner rejected claims 1-20 under 35 U.S.C. §102(e) as being anticipated by U.S. Publication No. 2005/0081018 to Luick. Applicant traverses the Examiner''s finding of anticipation. The Luick reference is not applicable prior art under 35 U.S.C. §102(e) because the invention disclosed but not claimed in the Luick patent application was derived from an inventor of the present patent application and is thus not the invention "by another." A Declaration under 37 C.F.R. §1.132 is included with the response that declares the inventor of the disclosed but not claimed invention in the Luick reference was derived from the inventor of this application and thus not an invention "by another". As a result, the Luick reference should be removed as prior art under 35 U.S.C. §102(e). Reconsideration is respectfully requested.

Conclusion

In summary, none of the cited prior art, either alone or in combination, teach, support, or suggest the unique combination of features in applicants' claims presently on file. Therefore, applicants respectfully assert that all of applicants' claims are allowable. Such allowance at an early date is respectfully requested. The Examiner is invited to telephone the undersigned if this would in any way advance the prosecution of this case.

Respectfully submitted,

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